

REMARKS

Applicant hereby amends claims 1-20 to more appropriately define the claimed subject matter. Claims 1-20, as amended, are supported in the Specification of the present application as originally filed. Claims 1-20 remain pending in this application.

§ 103(a) Rejections of Claims 1-20 over *Takane et al.* and *Gleason et al.*

Applicant respectfully traverses the rejection of claims 1, 2, 4, 5, 11, 12, 14, 15, 17, and 19 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,538,249 to Takane et al. ("*Takane et al.*") and U.S. Patent No. 6,456,899 to Gleason et al. ("*Gleason et al.*"); the rejection of claims 3 and 13 under 35 U.S.C. § 103(a) as unpatentable over *Takane et al.* and *Gleason et al.*; the rejection of claims 6 and 16 under 35 U.S.C. § 103(a) as unpatentable over *Takane et al.* and *Gleason et al.*; the rejection of claims 7, 8, 10, 18, and 20 under 35 U.S.C. § 103(a) as unpatentable over *Takane et al.* and *Gleason et al.*; and the rejection of claim 9 under 35 U.S.C. § 103(a) as unpatentable over *Takane et al.* and *Gleason et al.*

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. MPEP § 2142, 8th Ed., Rev. 6 (Sept. 2007).

"A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention." MPEP § 2145. Furthermore, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been

predictable to one of ordinary skill in the art” at the time the invention was made. MPEP §2143.01(III) (internal citation omitted). Moreover, “[i]n determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” MPEP § 2141.02(I) (emphasis in original; internal citations omitted).

It would not have been obvious for one of ordinary skill to combine the teachings of *Takane et al.* and *Gleason et al.* to obtain a pattern measuring apparatus comprising, inter alia, “a processor to, for each of the images, (i) scan the image, using the predetermined edge reference data, to detect edge points of the image,” as recited in independent claim 1 as amended (emphasis added). Even the combination of teachings from *Takane et al.* and *Gleason et al.* that is apparently suggested by the Examiner fails to include “scan[ning] the image, using the predetermined edge reference data, to detect edge points of the image,” as recited in claim 1.

Takane et al. teaches “obtain[ing] an image which is focused on all portions of a sample” (Abstract). “[T]wo images are captured: one in which a focal position is set on [a] surface of [a] semiconductor sample and the other in which a focal position is set on [a] bottom surface of a contact hole. Then, in-focus portions can be extracted from each image so as to produce a composite image, which is a two-dimensional image focusing on all surfaces of the sample” (col. 5, lines 8-14). “[C]omposition using n images can be performed by sequentially repeating the same process on a series of image pairs” (col. 6, lines 57-59). *Takane et al.* continues, “FIG. 11 is a schematic diagram showing a composing process according to the present invention. The figure

illustrates an example in which pixel values from a Sobel filter are set as in-focus evaluation references. Like image differential, the Sobel filter is used to extract edge information of an image, and when a pixel value processed by a Sobel filter is large, this means that changes in pixel values around the pixel are large. That is, the pixel is in focus and is hardly blurred. Numeral 1101 indicates a plurality of images captured by changing a focus, and 1102 indicates images obtained by processing each image 1101 by use of a Sobel filter.” (Col. 6, line 60 to col. 7, line 4).

In regard to the claims as pending before the present Amendment, the Examiner stated, “the plurality of pattern images is image set 1101 and the edge reference data is image set 1102” (Office Action, page 3, paragraph 4). The Examiner appears to have argued, “[t]he Sobel filter creating image set 1102” constitutes “detect[ing] edge points,” as required by claim 1 (Office Action, page 4, paragraph 2).

However, *Takane et al.* does not teach or suggest “scan[ning] the image, using the predetermined edge reference data, to detect edge points of the image,” as required by claim 1. A Sobel filter computes an approximation of the gradient of an image intensity function. But merely computing an intensity gradient, as performed by the Sobel filter in *Takane et al.*, does not constitute “scan[ning] the image, using the predetermined edge reference data, to detect edge points of the image,” as recited in claim 1 (emphasis added). For example, *Takane et al.* does not teach or suggest any “predetermined edge reference data,” as required by claim 1 (emphasis added). The intensity gradient of *Takane et al.* is not “predetermined,” but rather generated in the same “computing” process that the Examiner relies on as allegedly constituting the “scan[ning]” process of claim 1. Moreover, for at least this reason, computing the

intensity gradient, as taught by *Takane et al.*, cannot constitute “using” the intensity gradient, as required by claim 1 (emphasis added). Edge reference data cannot be “used” before it has been generated. Thus, *Takane et al.* fails to teach or suggest “scan[ning] the image, using the predetermined edge reference data, to detect edge points of the image,” as required by claim 1.

Gleason et al. does not make up for the deficiencies of *Takane et al.* because *Gleason et al.* also fails to teach or suggest “scan[ning] the image, using the predetermined edge reference data, to detect edge points of the image,” as recited in claim 1. The Examiner does not rely on *Gleason et al.* for any teaching or suggestion of “scan[ning] the image, using the predetermined edge reference data, to detect edge points of the image,” as required by claim 1.

Thus, since the Examiner’s proposed combination of *Takane et al.* and *Gleason et al.* fails to teach or suggest all elements of claim 1, claim 1 is allowable over *Takane et al.* and *Gleason et al.* Furthermore, the Examiner has not identified any reason why one of ordinary skill would otherwise modify *Takane et al.* and *Gleason et al.*, either alone or in combination, to obtain “scan[ning] the image, using the predetermined edge reference data, to detect edge points of the image,” as recited in claim 1.

Independent claims 7, 11, and 18-20 are not rendered obvious by *Takane et al.* and *Gleason et al.* for reasons substantially similar to those explained above in relation to claim 1. For example, *Takane et al.* and *Gleason et al.* fail to teach or suggest, alone or in combination, a method comprising, inter alia, “detecting edge points of each of the

images by scanning the image using predetermined edge reference data," as recited in claim 11 (emphasis added).

Thus, since *Takane et al.* and *Gleason et al.* do not render obvious "scan[ning] the image[,] using [the] predetermined edge reference data," to "detect[] edge points" of the image, as recited in independent claims 1, 7, 11, and 18-20, these claims and claims 2-6, 8-10, and 12-17, which depend from some of these independent claims, are allowable over *Takane et al.* and *Gleason et al.*

CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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